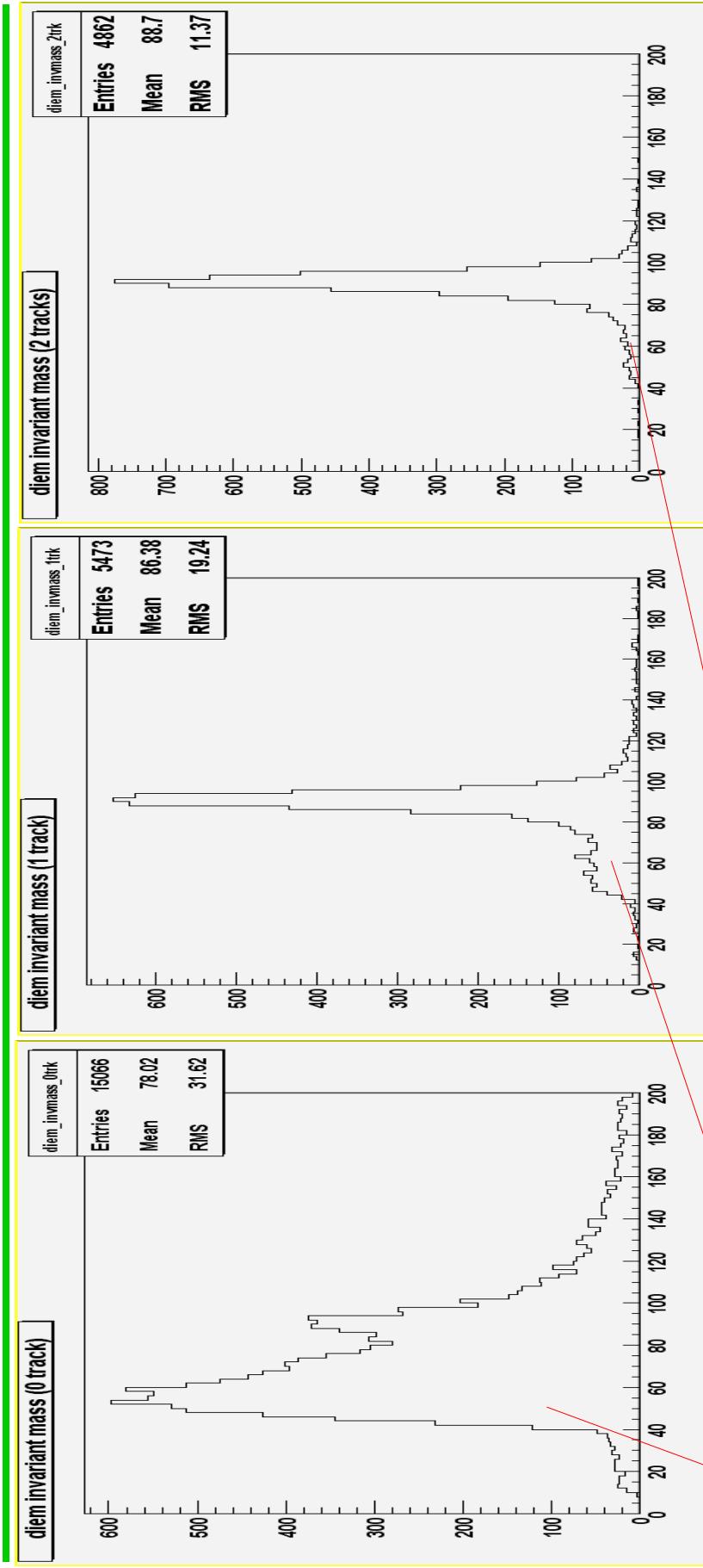


$Z(\text{ee}) + \text{Jets}$: Fakerate and QCD background estimation



$$\begin{aligned}
 N_0 &= \text{DY} + \text{QCD} \\
 N_1 &= 2(\varepsilon - \varepsilon^2) \text{DY} + 2(f-f^2) \text{QCD} \\
 N_2 &= \varepsilon^2 \text{DY} + f^2 \text{QCD}
 \end{aligned}$$

f = ? (fake rate)

$\varepsilon = 0.72$ (track matching/finding)



Selection Criteria

→ **EM:**

- Latest EM candidate
- $|EMF| > .9$
- $|Iso| < 1.5$
- $H_{mX} < 20$
- $P_T > 20 \text{ GeV}$
- Fiducial:
 - $|\eta| < 2.5$
 - $|ICR| = 1.1 < |\eta| < 1.6$
 - No phi cuts
- $80 \text{ GeV} \leq m_{ee} \leq 100 \text{ GeV}$

→ **Jets (JCCB):**

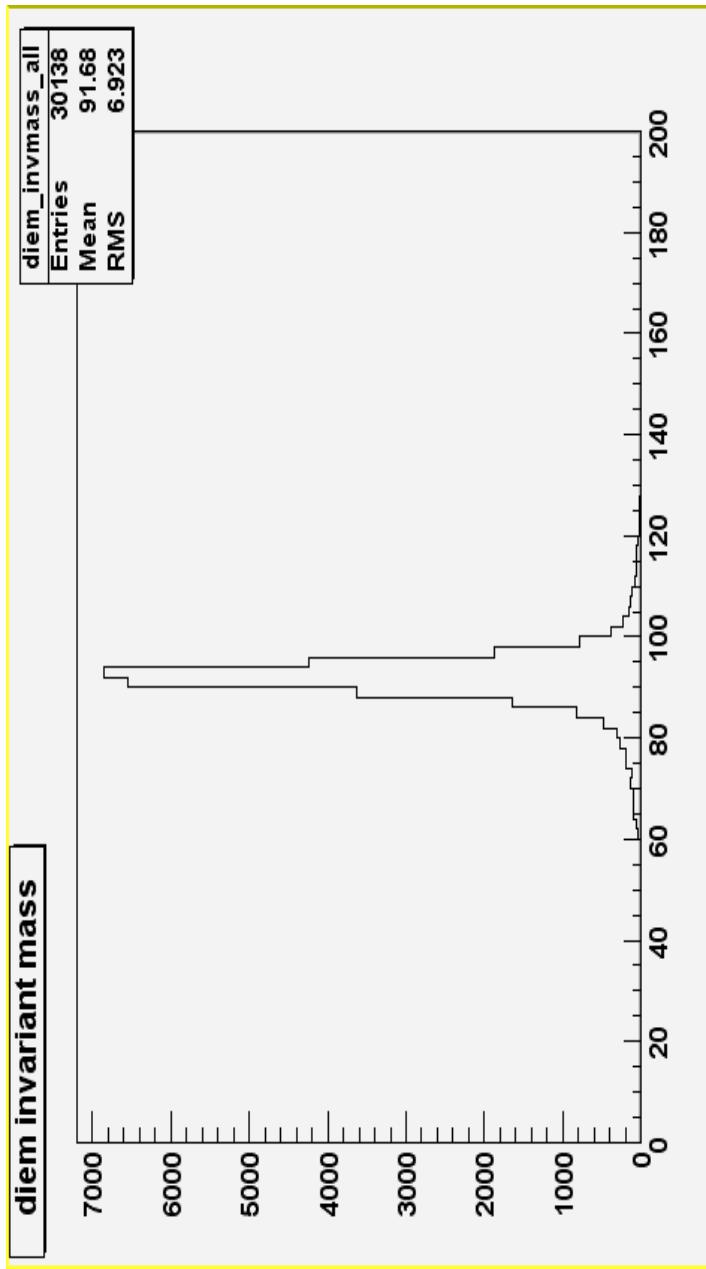
- Jetcor v04-02-03
- $.05 < EM_{frac} < .95$
- $Ch_{frac} < .4$
- $H_{tfrac} < 10.$
- $N_{90} > 1$
- F90 cut
- dR between jet and id'd EM object $> .45$
- $P_T > 20 \text{ GeV}$
- $|\eta| < 2.5$



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MC DY background at WZgroup

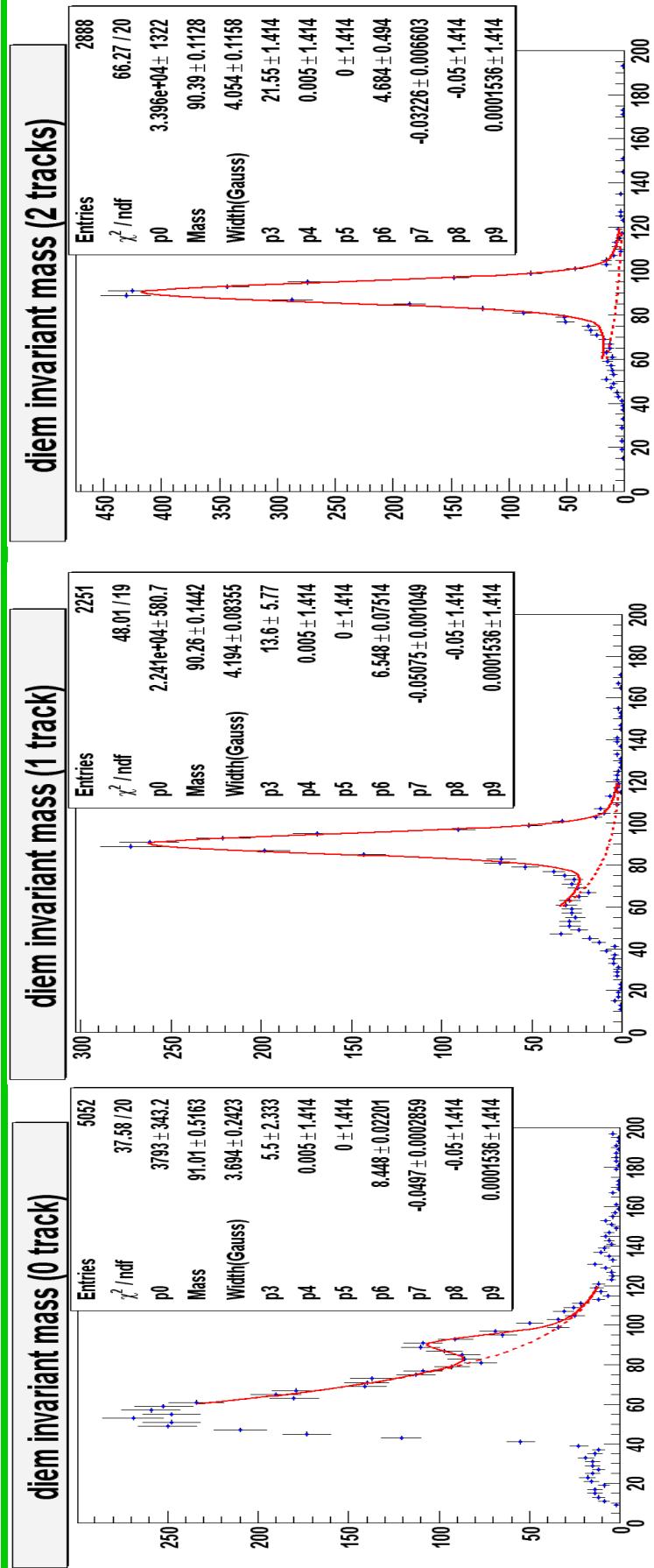
247k p13 Gamma*/Z -> ee sample (full DY simulated)
WZ group electron quality cuts: ET>25GeV, $|\det_{\text{eta}}| < 1.1$, $\text{is_in_fiducial} = \text{true}$



$$\begin{aligned} B(DY) &= 328 \\ S(Z \rightarrow ee) + B(DY) &= 27236 \\ (1.2 \pm .1)\% \text{ DY contribution} \end{aligned}$$

WZgroup: (**1.7 +/- .4**) DY contribution

Same method using p13 data



f=3.5%
S+B = 3927
B = 136
B(QCD) = 31
B(DY) = 106

Requiring at least 1 good jet present:

F=1.4% **S+B = 665**
B = 24
B(QCD) = 3
B(DY)=22



Todo

- Trigger efficiency
- Acceptance
- Calculate xsection
- p'13 vs p14